

Larry Summers worked under my supervision from January 1982 to March 1984. During this time he worked on three major projects. The first was a game design concerning an earthquake in the San Francisco area. Larry initiated and designed this game, but did not implement it. The second project was the game EXCALIBUR. This was a major effort spanning 16 months. I designed this game and Larry acted as programming project leader. He was responsible for the smooth integration of a dozen program modules written by three programmers. He managed the memory map, allocating RAM for the various modules. He designed and maintained the equates file that served as the parameter-passing vehicle for the various modules. He wrote several of the modules, including the very tricky code-swapping module and the very extensive artificial intelligence module. He wrote all of the code for handling economics processing and a variety of internal computations. He extensively modified and expanded the title scene, the ending scene, and the scrolling map scene, all of which I had initially written. He added a musical accompaniment to the title and ending scenes. He also wrote the code for the very striking dissolve graphics in the title scene and the Merlin room. Larry also supervised the work of a junior programmer responsible for one of the modules. Finally, Larry participated in the design sessions in which we worked out the detailed design. He played a major role in these design discussions.

For the last six months of his time with me, Larry worked on a multi-player telecommunications game. This game incorporated a number of unique design features and was well on the way towards completion when Larry and I were laid off.

Larry's most valuable talent is his engineering and design maturity. He does not hurl himself into projects with the lack of foresight so common to younger programmers. He establishes clearly defined goals and maps out a realistic strategy for achieving them. He plans his project carefully and with the thoroughness of a seasoned professional. His programming is meticulous and well-documented, yielding code that is easily modified if the need arises. I learned a good bit about structuring big programming projects from Larry.

Larry has had experience supervising another programmer, but I have difficulty gauging the experience, as the relationship, while productive, was strained. Inasmuch as my own relationship with the programmer in question was also strained, I cannot ascribe the difficulties Larry experienced to any lack of supervisorial talent on Larry's part. I credit Larry for maintaining the productivity of a very difficult employee.

Larry has a very strong sense of professional duty; this expressed itself in a variety of ways. He maintained high morale and a positive attitude during some very trying times when the other members of my group succumbed to demoralization and cynicism. At various times when even I despaired of ever completing the EXCALIBUR project, Larry maintained his optimism and his determination to complete the project. Indeed, four months after the completion of the project, he cheerfully volunteered to go back to it and correct a number of design problems that had become apparent. In the two years he worked for me, he never once said or did anything that had a negative impact on the other members of the group.

Larry has a strong sense for good design. I take some pride in my own

efforts here; I feel that I trained Larry in the critical thinking necessary to root out the structural flaws in any game design. I take great pride in observing Larry's skill at probing a design for weaknesses.

I would do both Larry and a prospective employer an injustice if I failed to mention my estimate of Larry's weaknesses. Although it is abnormal to include such a discussion in a letter of recommendation, I hope to heighten the credibility of this letter by frankly addressing Larry's weaknesses. The first item I will discuss is Larry's creativity. Larry has a strong desire to create glorious products, but he has not yet enough experience to quite pull off really grandiose stuff. I would liken Larry to an experimental jet plane with all the basic parts in place, but so far they are not tuned well enough to actually take off. I think that Larry will be quite successful creating original games that are, by industry standards, satisfactorily innovative. I cannot yet warrant Larry as a Picasso of game design. He may have it in him, but we need to see more first.

Larry can be overly zealous in his loyalty to his coworkers. In its most extreme form, I have seen Larry's sense of loyalty sometimes turn against other elements in the company whom Larry perceived to be working against his group.

My final observation is that Larry can be a bit slow in his work. This was most obvious when I needed a "crash effort". Larry works at a steady, deliberate pace, and insists on doing the preparatory work properly. This preparatory work may take weeks; once it is done, Larry will write vast quantities of code in a very short time. My complaint is therefore not with Larry's productivity or level of effort, but rather with his ability to "turn on a dime". I suspect that this is the inevitable price one pays for Larry's very professional approach.

It should be obvious that these criticisms are not serious in nature. All in all, I think that Larry would be a very valuable employee for any company designing computer games. If I ever have an opportunity to hire a game designer, I will call Larry first.

*Chris Crawford*